FIG. 1

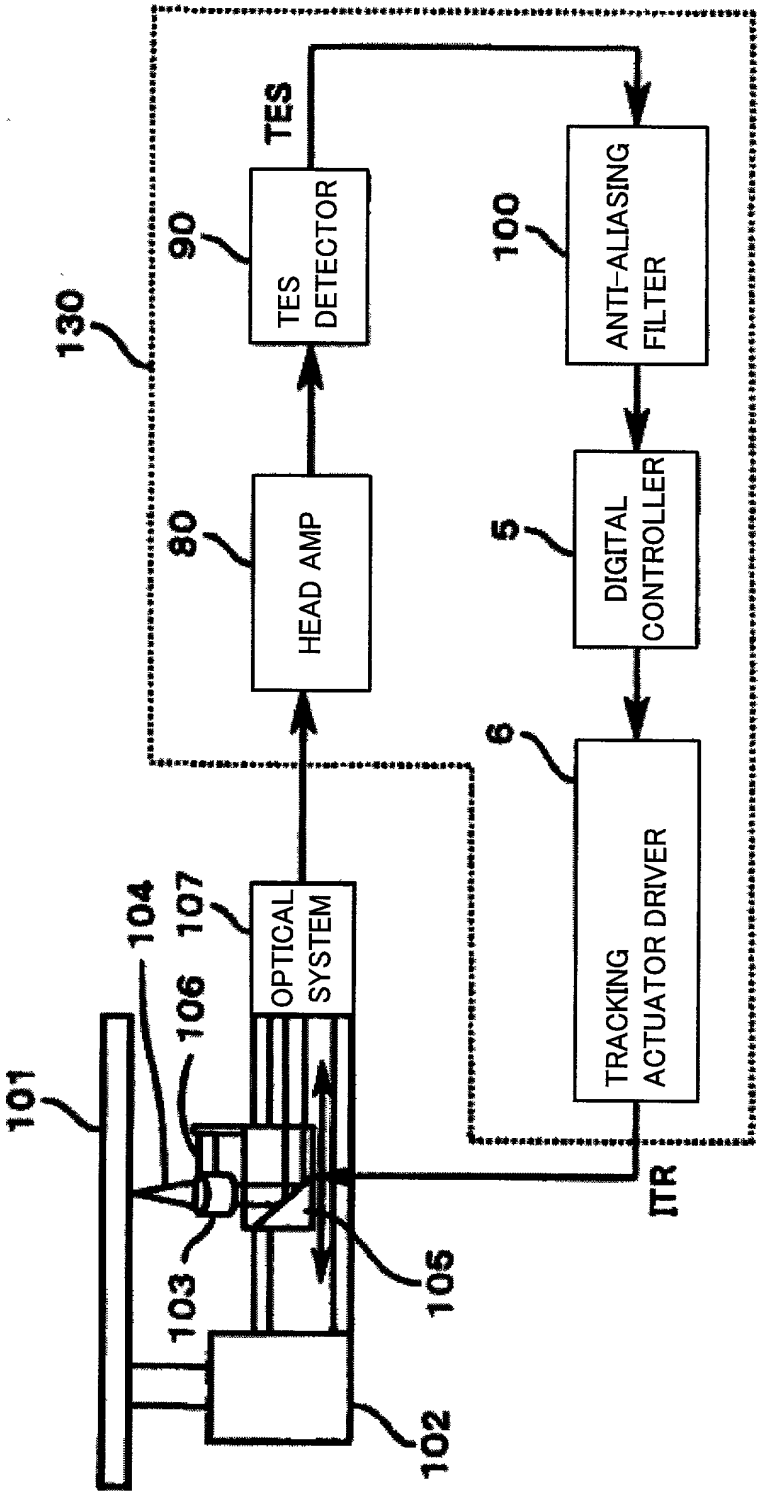


FIG. 2A

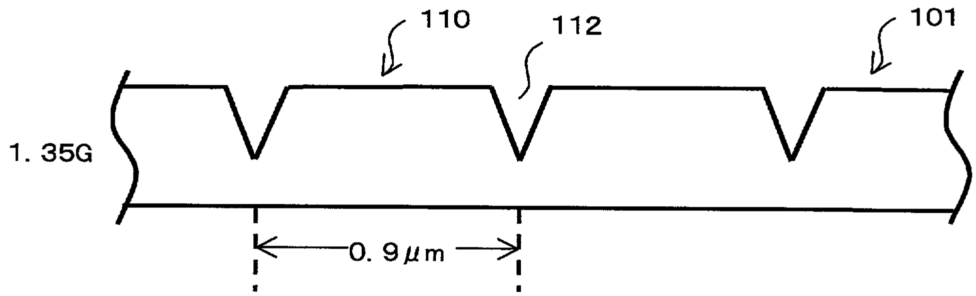


FIG. 2B

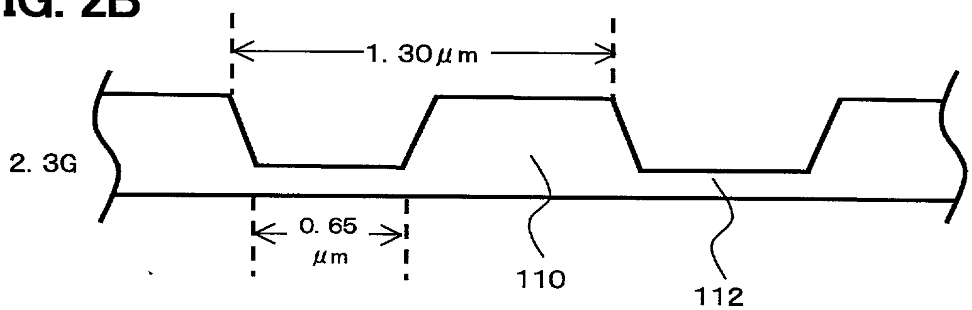


FIG. 3

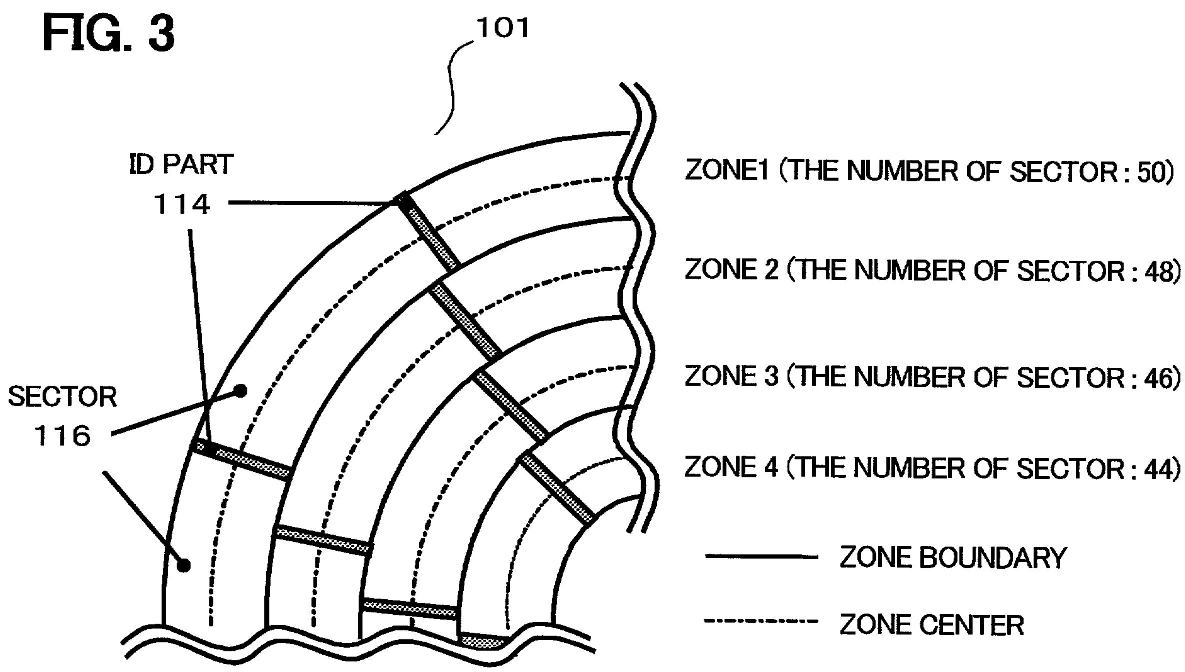


FIG. 4

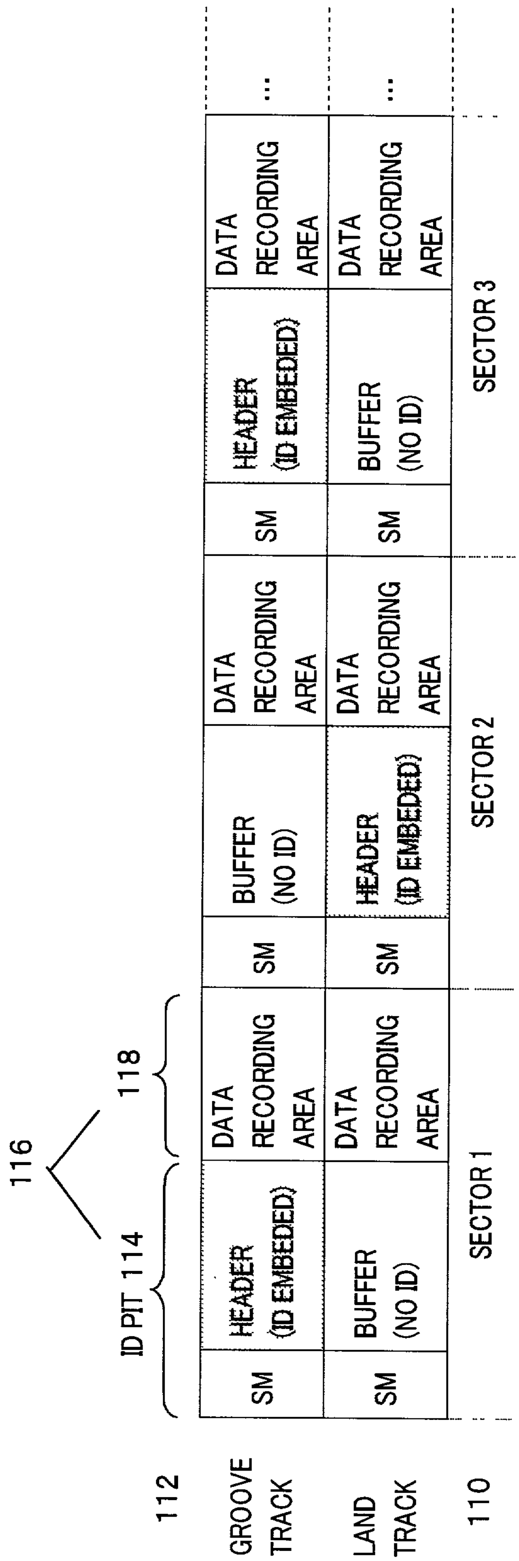

112
GROOVE TRACK
LAND TRACK
110
116
ID PIT 114
118
SM
HEADER (ID EMBEDED)
DATA RECORDING AREA
BUFFER (NO ID)
SM
BUFFER (NO ID)
DATA RECORDING AREA
HEADER (ID EMBEDED)
SM
HEADER (ID EMBEDED)
DATA RECORDING AREA
BUFFER (NO ID)
...
SECTOR 1
SECTOR 2
SECTOR 3

FIG. 5

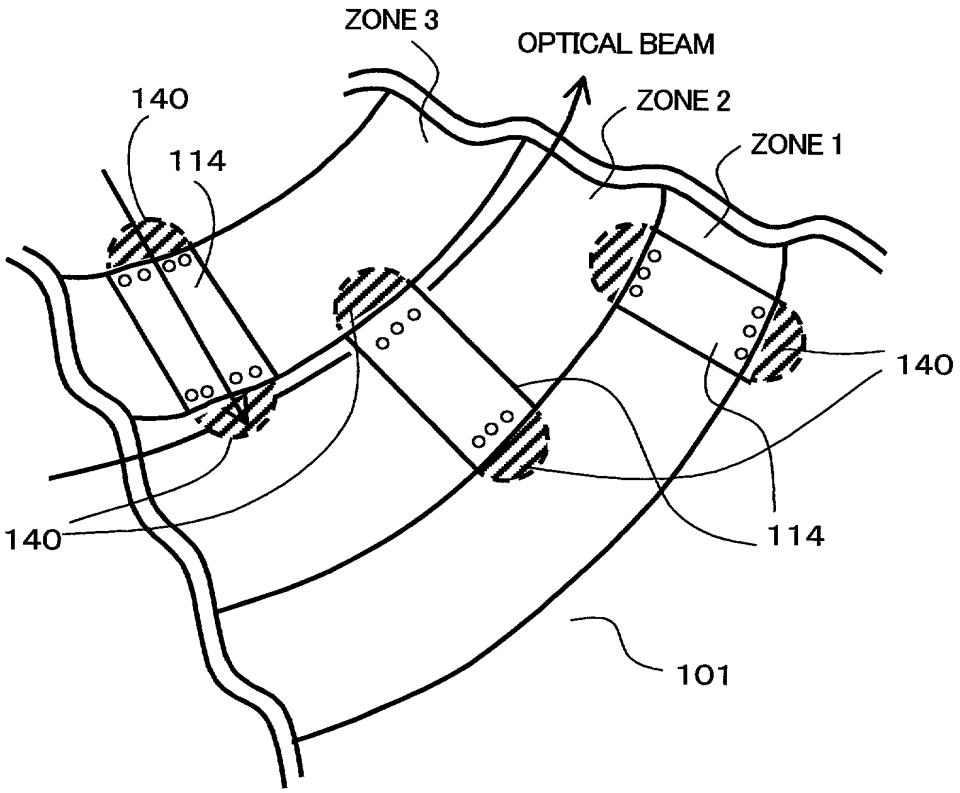


FIG. 6A

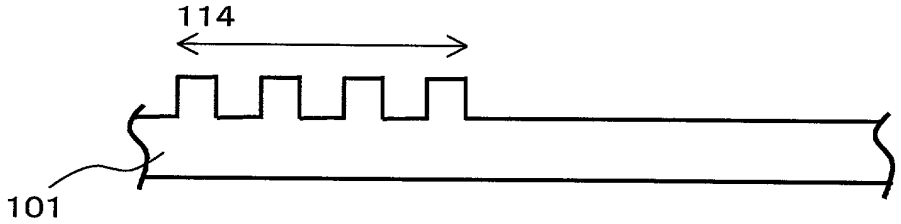


FIG. 6B

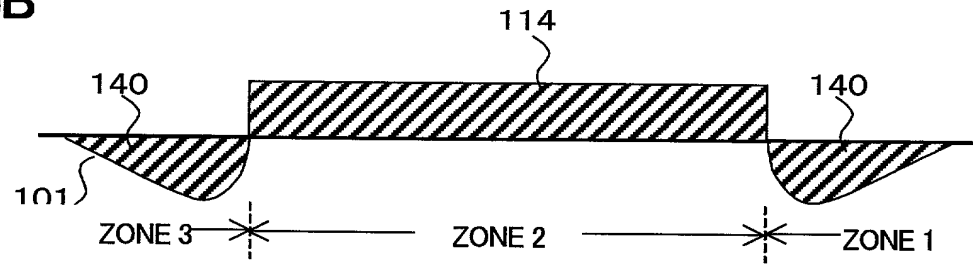


FIG. 7

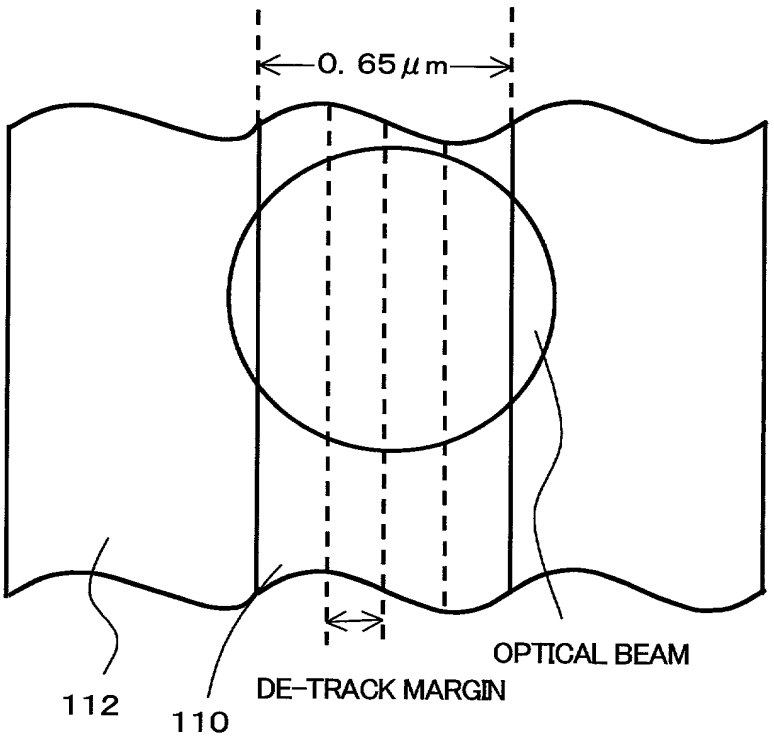


FIG. 8

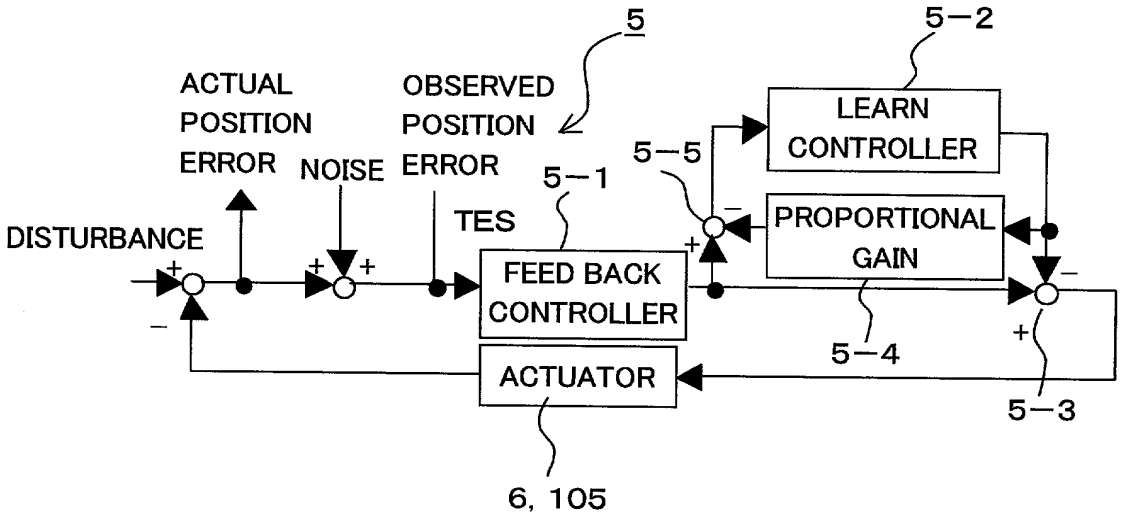


FIG. 9

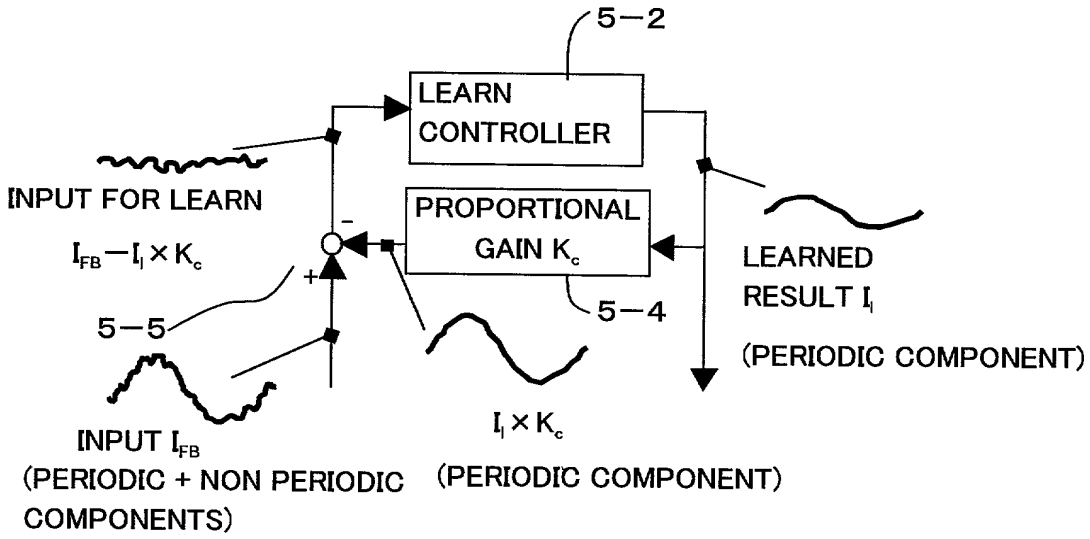


FIG. 10

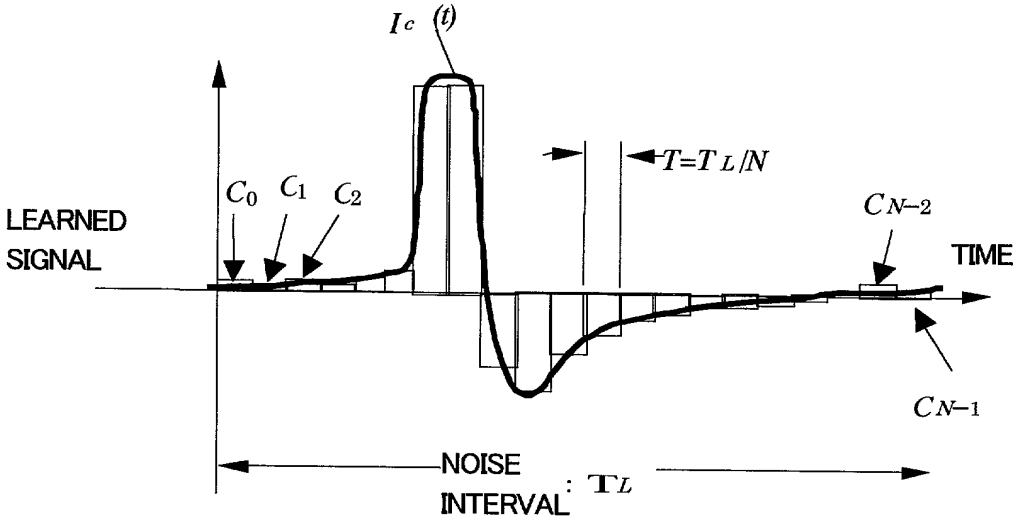

Ic (t)
T=TL/N
C0
C1
C2
CN-2
CN-1
LEARNED SIGNAL
TIME
NOISE INTERVAL : TL

FIG. 11

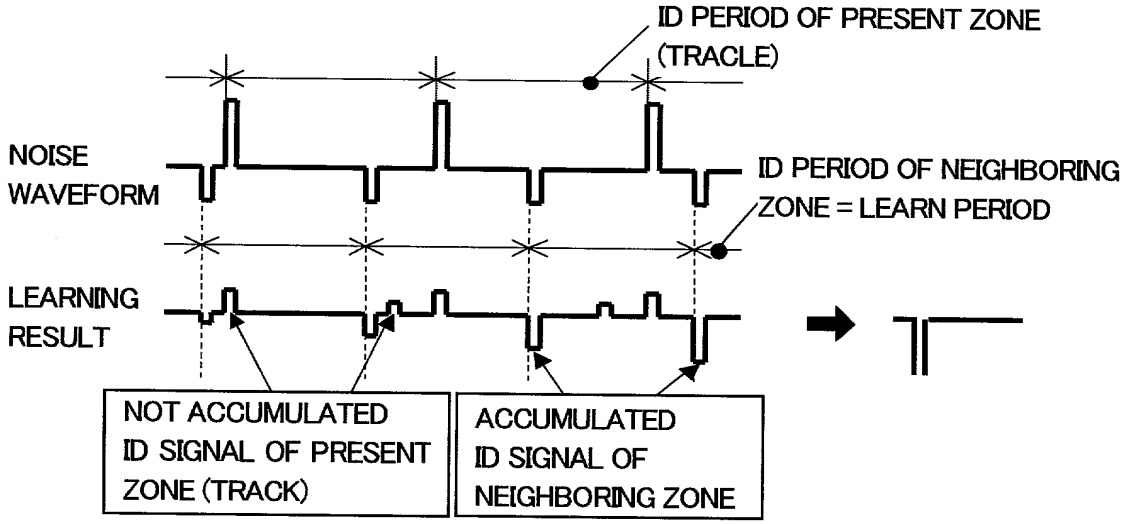

ID PERIOD OF PRESENT ZONE (TRACLE)
NOISE WAVEFORM
ID PERIOD OF NEIGHBORING ZONE = LEARN PERIOD
LEARNING RESULT
NOT ACCUMULATED ID SIGNAL OF PRESENT ZONE (TRACK)
ACCUMULATED ID SIGNAL OF NEIGHBORING ZONE

FIG. 12

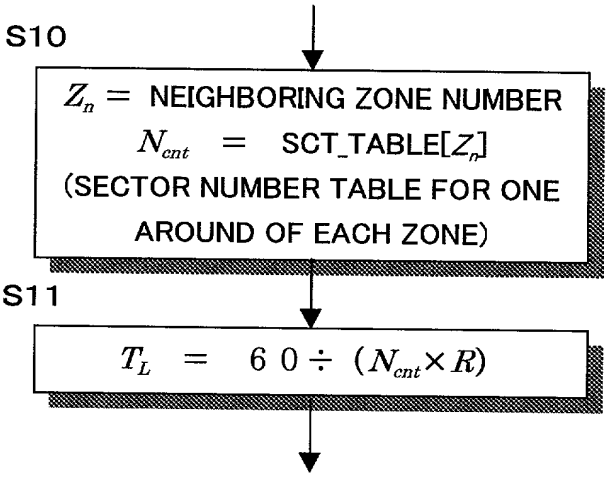

S10
Z_n = NEIGHBORING ZONE NUMBER
N_{cnt} = SCT_TABLE[Z_n]
(SECTOR NUMBER TABLE FOR ONE AROUND OF EACH ZONE)
S11
T_L = 60 ÷ (N_{cnt} × R)

FIG. 13

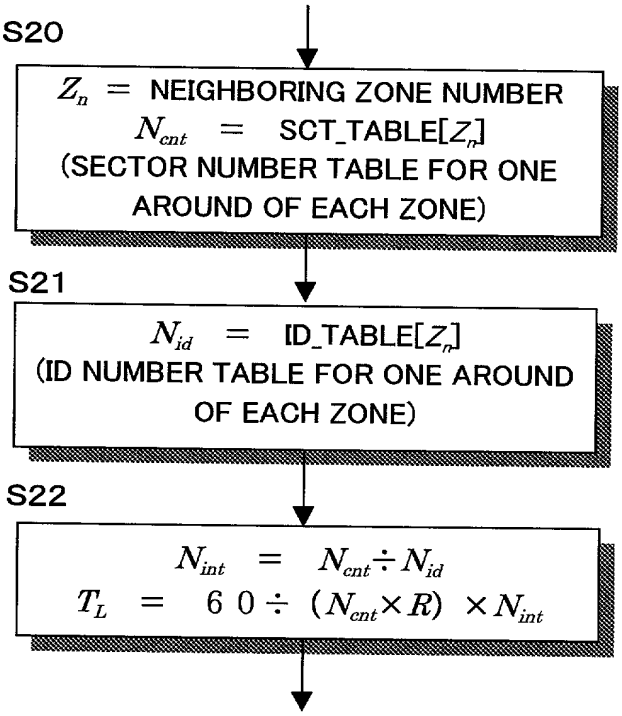

S20
Z_n = NEIGHBORING ZONE NUMBER
N_{cnt} = SCT_TABLE[Z_n]
(SECTOR NUMBER TABLE FOR ONE AROUND OF EACH ZONE)
S21
N_{id} = ID_TABLE[Z_n]
(ID NUMBER TABLE FOR ONE AROUND OF EACH ZONE)
S22
N_{int} = N_{cnt} ÷ N_{id}
T_L = 60 ÷ (N_{cnt} × R) × N_{int}

FIG. 14

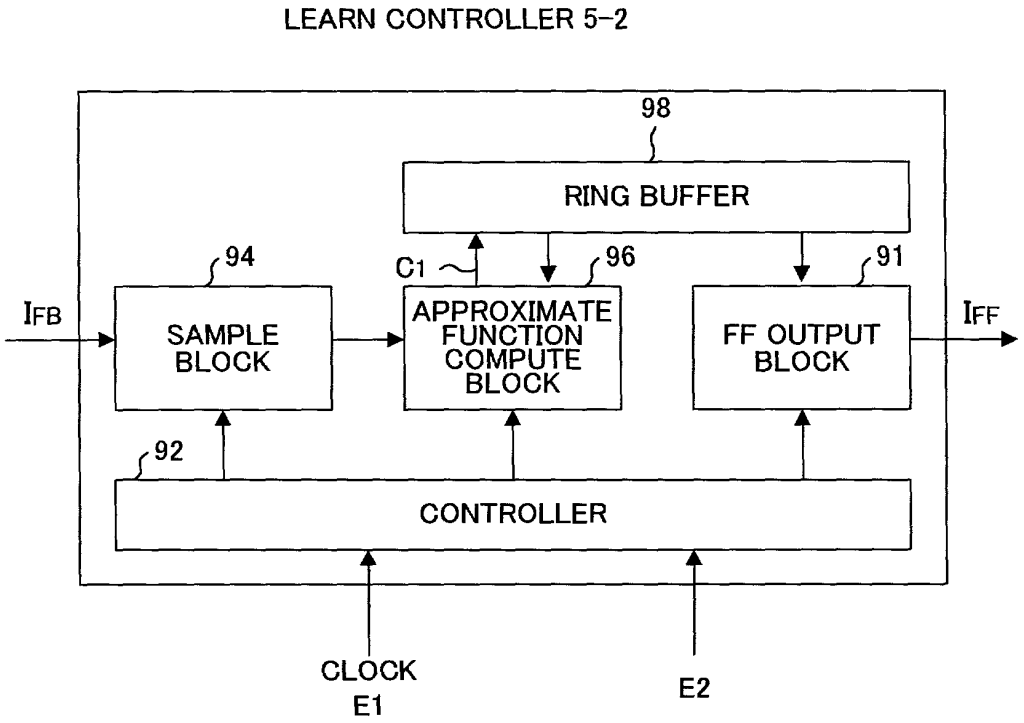
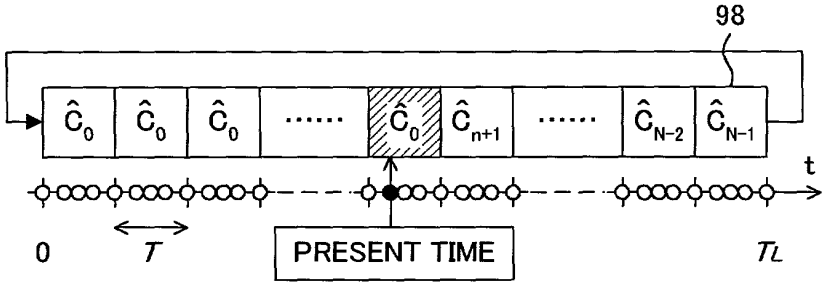


FIG. 15



$$i_u = \text{floor}\left(\frac{t}{T}\right)$$

$$\hat{C}_{iu}(N) = \hat{C}_{iu}(L) + K_I \cdot T_s \cdot I_{FB}$$

FIG. 16

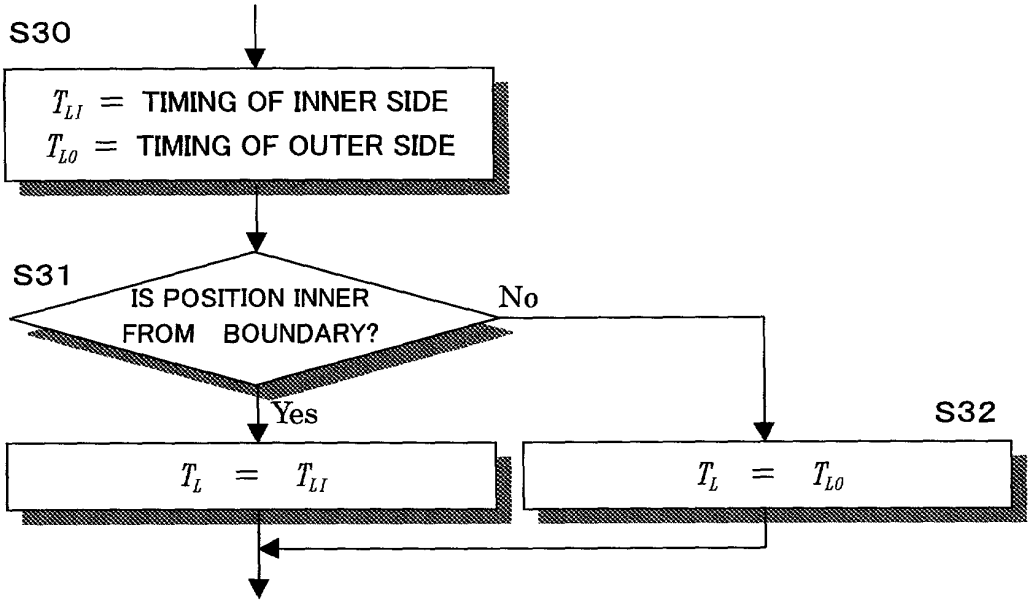


FIG. 17

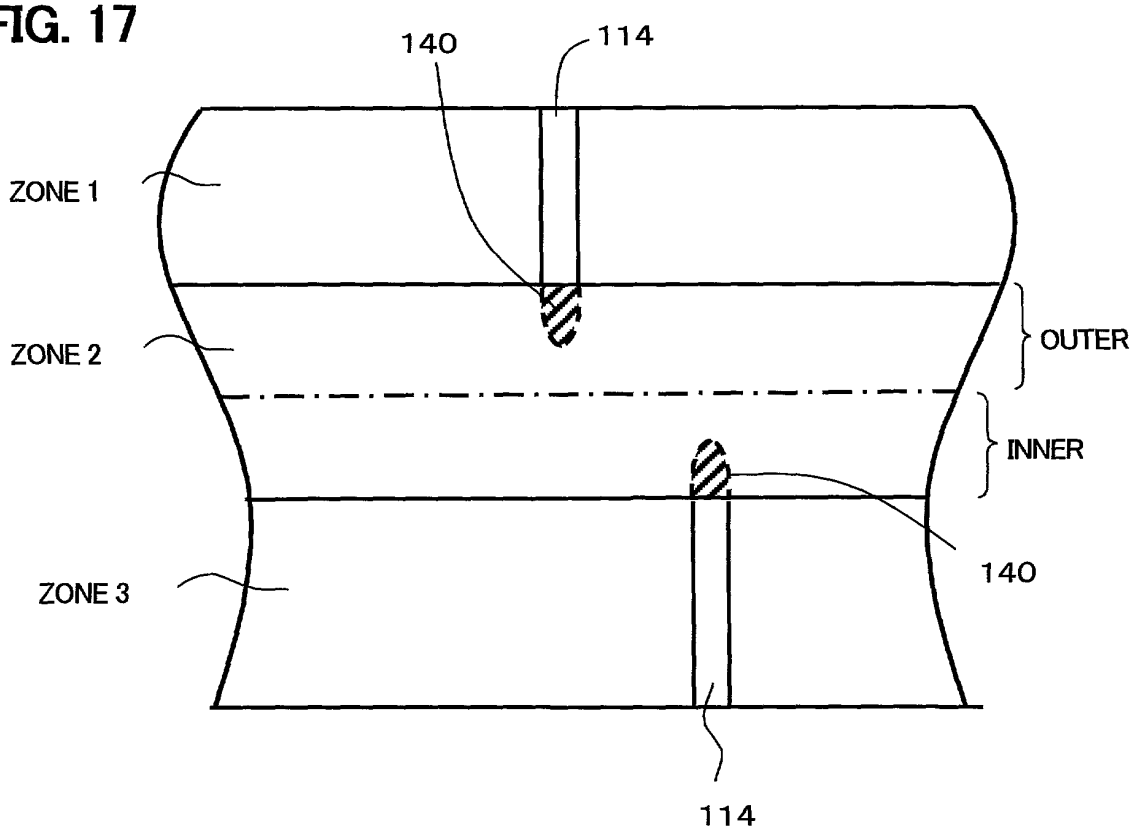


FIG. 18

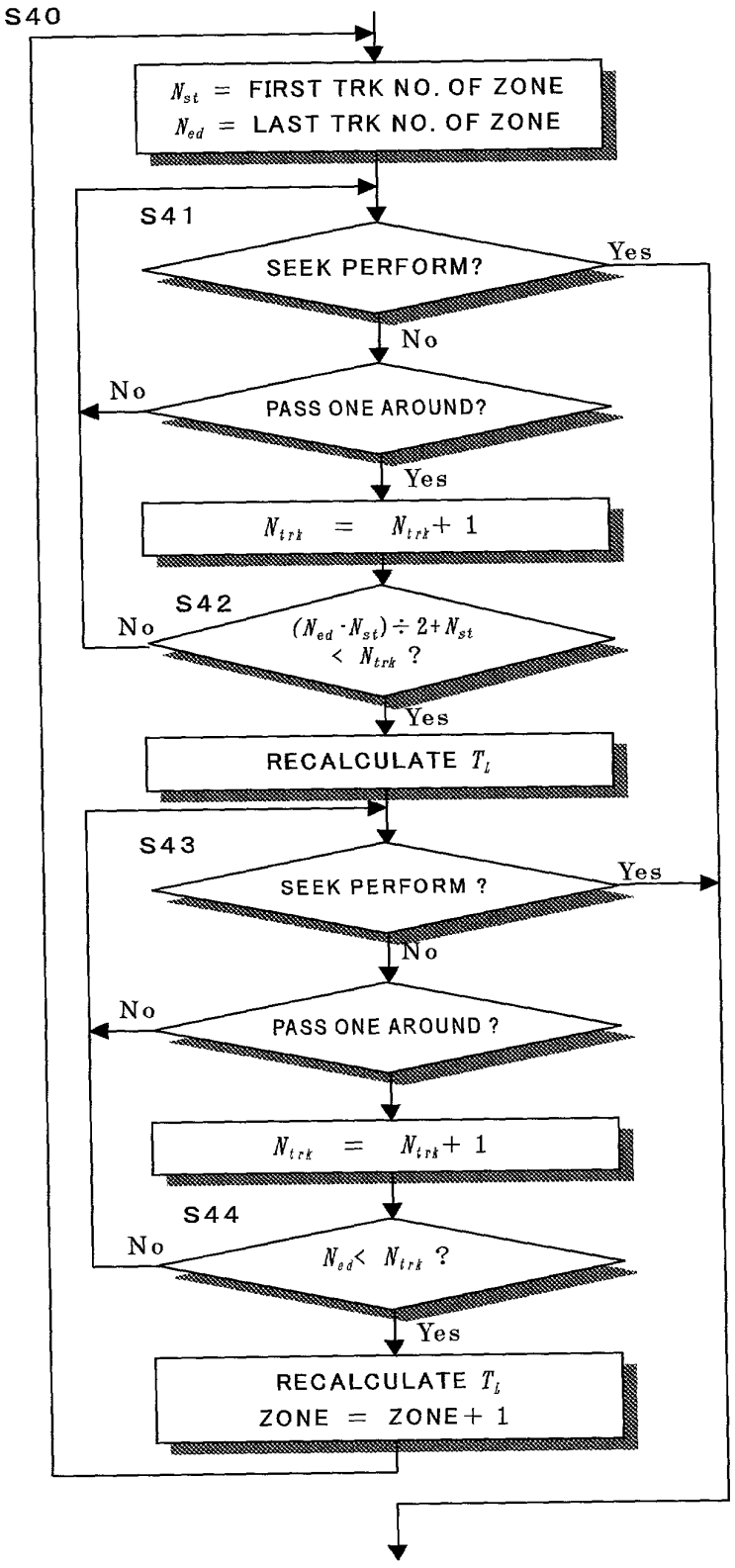

S40
N_{st} = FIRST TRK NO. OF ZONE
N_{ed} = LAST TRK NO. OF ZONE
S41
SEEK PERFORM?
Yes
No
No
PASS ONE AROUND?
Yes
N_{trk} = N_{trk} + 1
S42
No
$(N_{ed} - N_{st}) \div 2 + N_{st}$ < N_{trk} ?
Yes
RECALCULATE T_L
S43
SEEK PERFORM ?
Yes
No
No
PASS ONE AROUND ?
N_{trk} = N_{trk} + 1
S44
No
N_{ed} < N_{trk} ?
Yes
RECALCULATE T_L
ZONE = ZONE + 1

FIG. 19

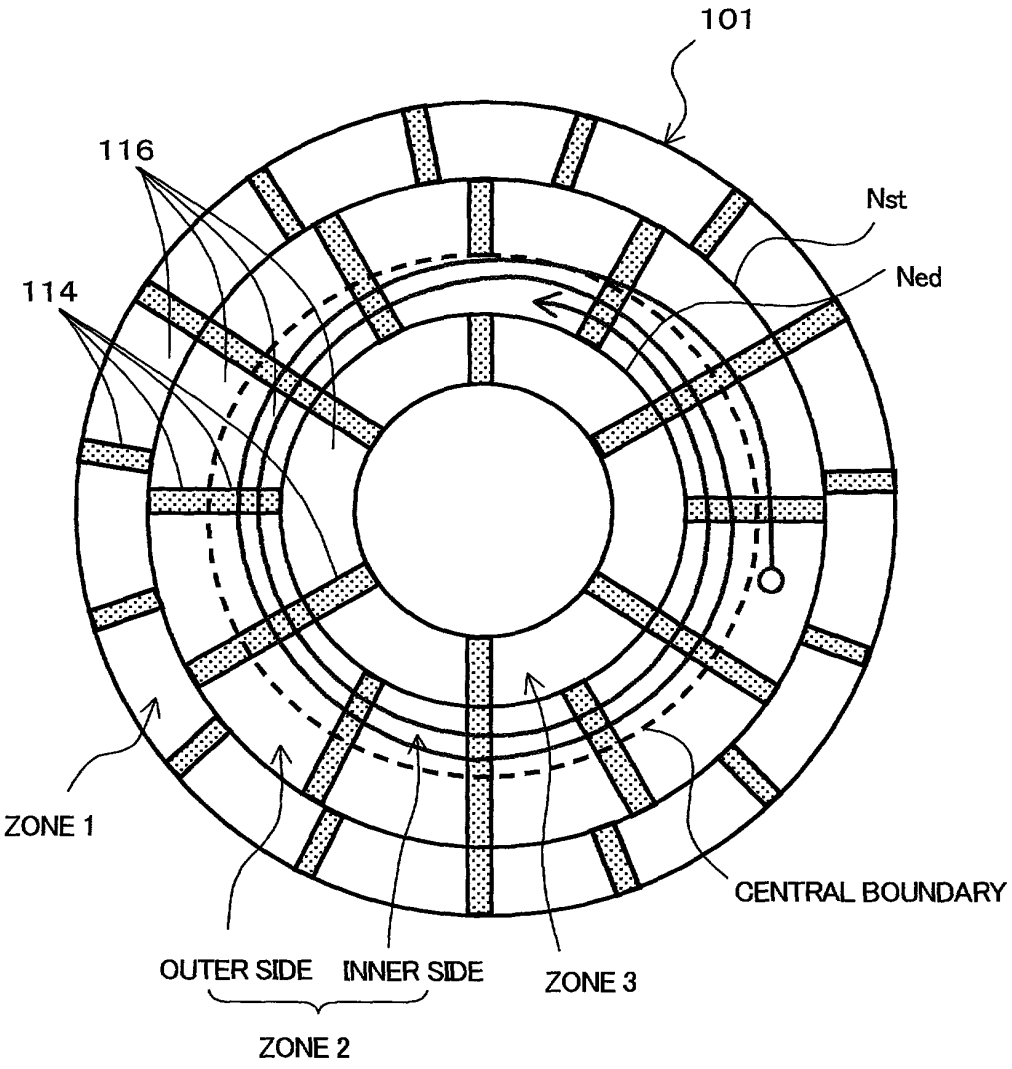


FIG. 20

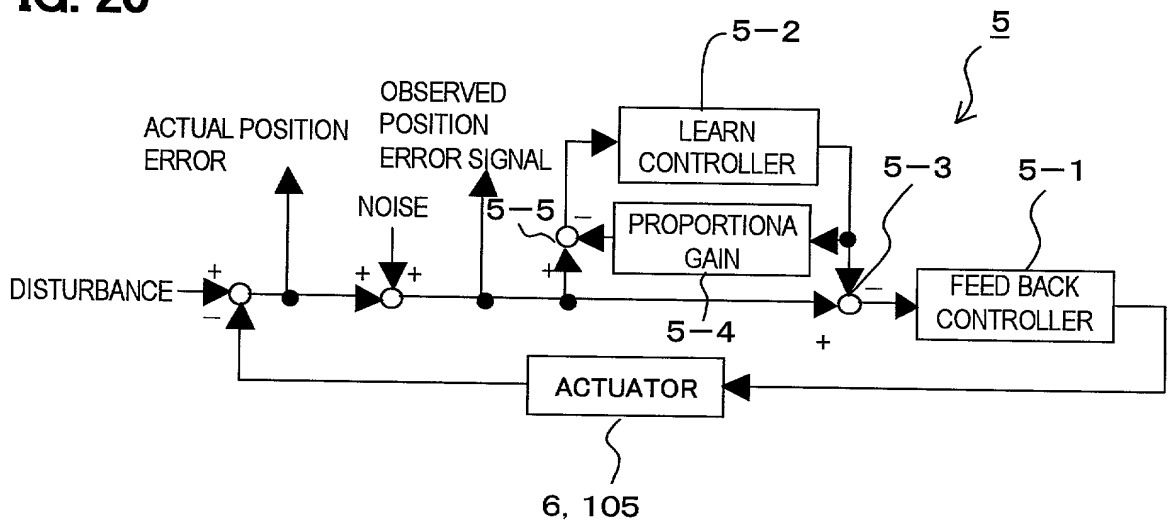


FIG. 21

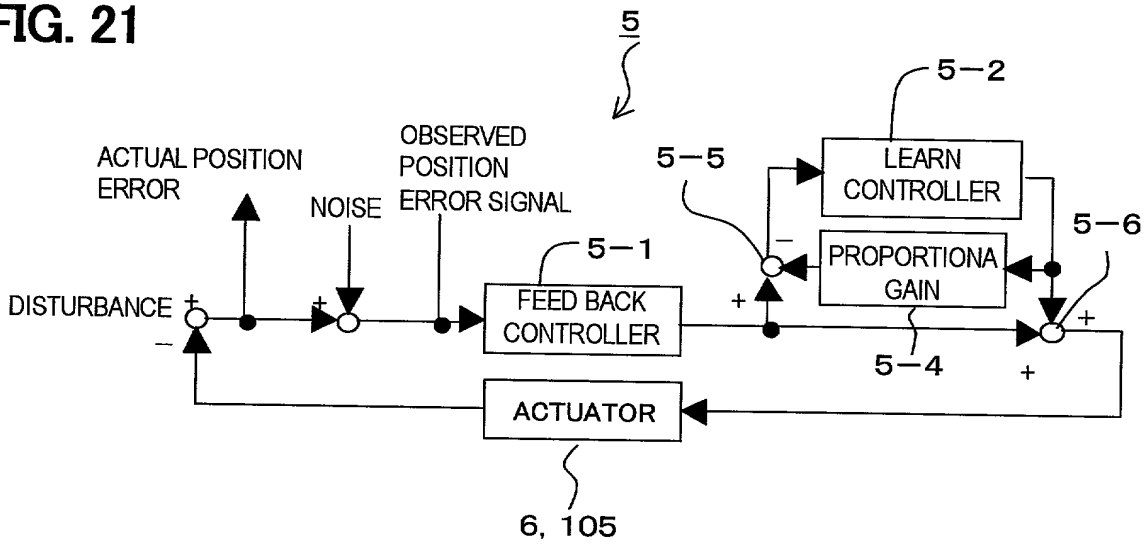


FIG. 22

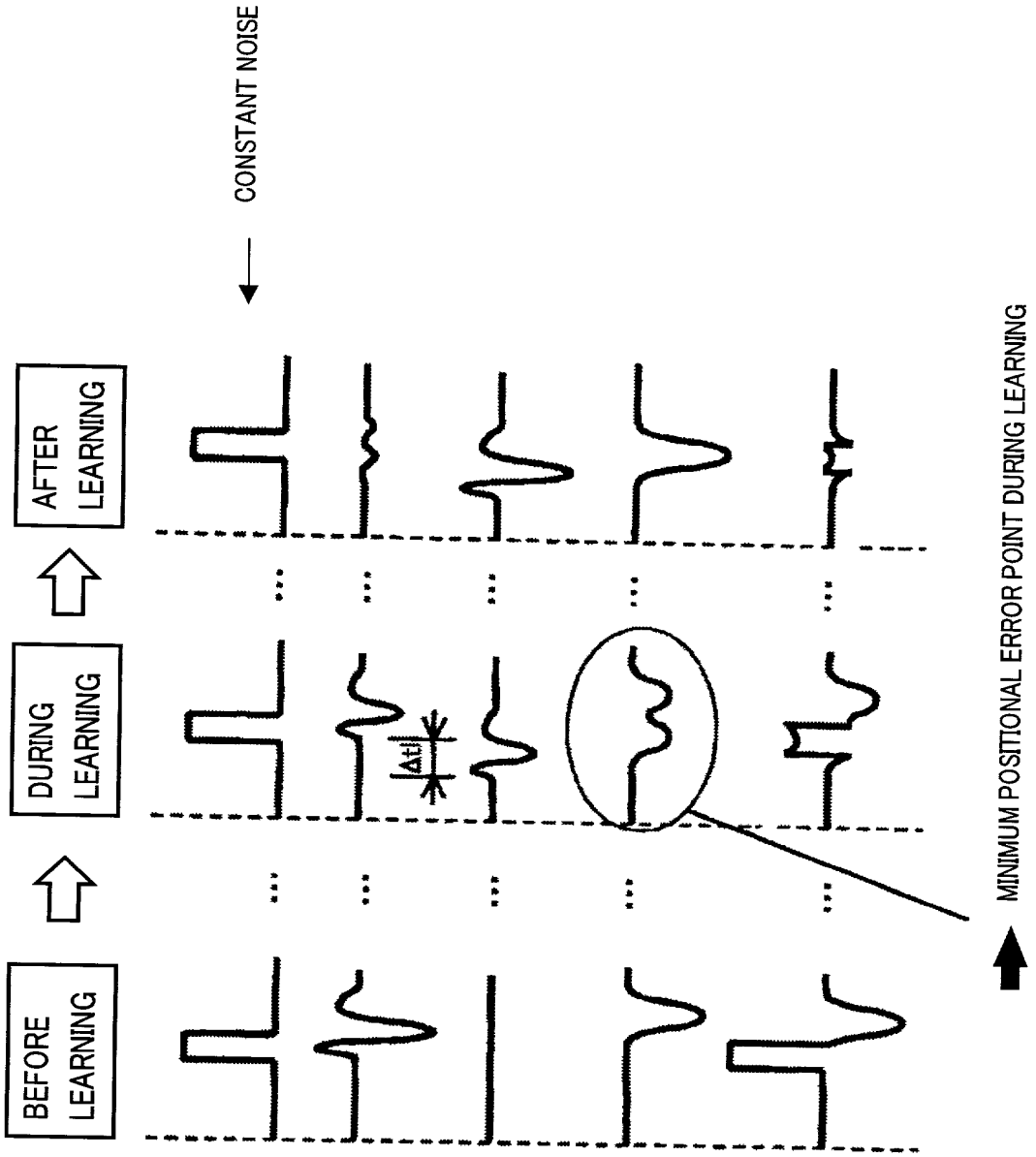
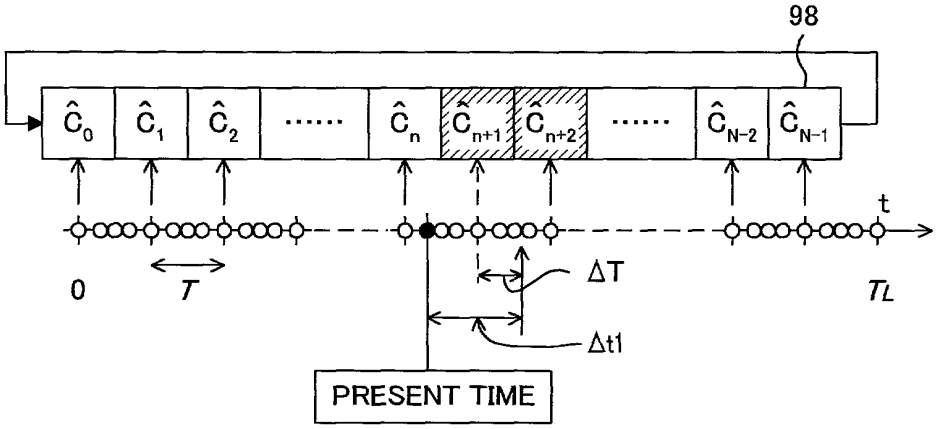


FIG. 23



$$io = \text{floor}\left(\frac{t+\Delta t1}{T}\right)$$

IF io ≦ N−2 then io1=io,io2=io1+1
IF io = N−1 then io1=N−1,io2=0
IF io ≧ N then io1=io−N,io2=io1+1

$$1_{FF}(\Delta T) = \hat{C}_{io1} + \frac{\hat{C}io2 - \hat{C}io1}{T} \quad = \Delta T$$

FIG. 24

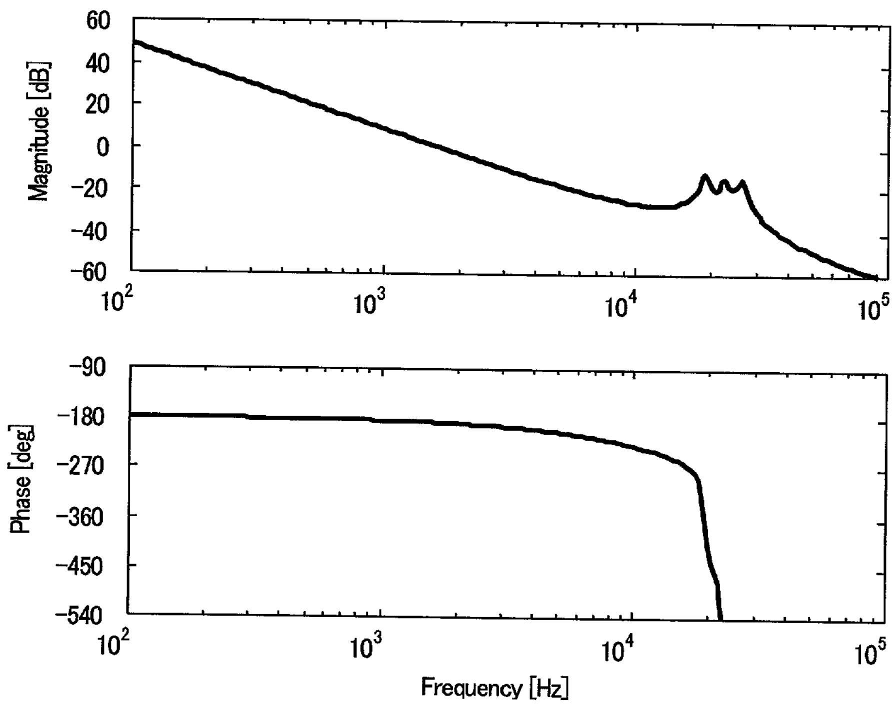


FIG. 25

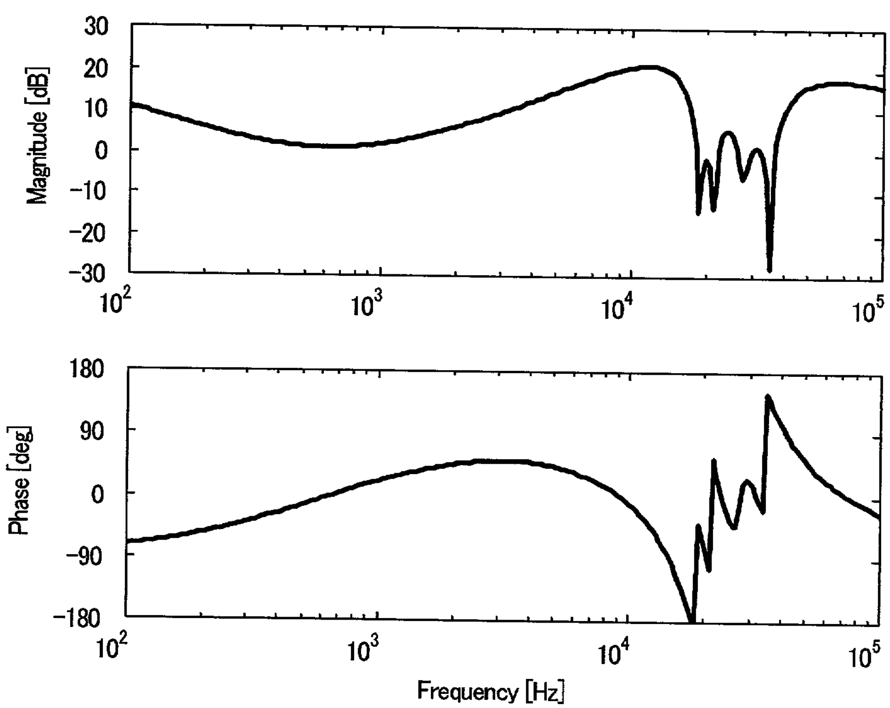


FIG. 26

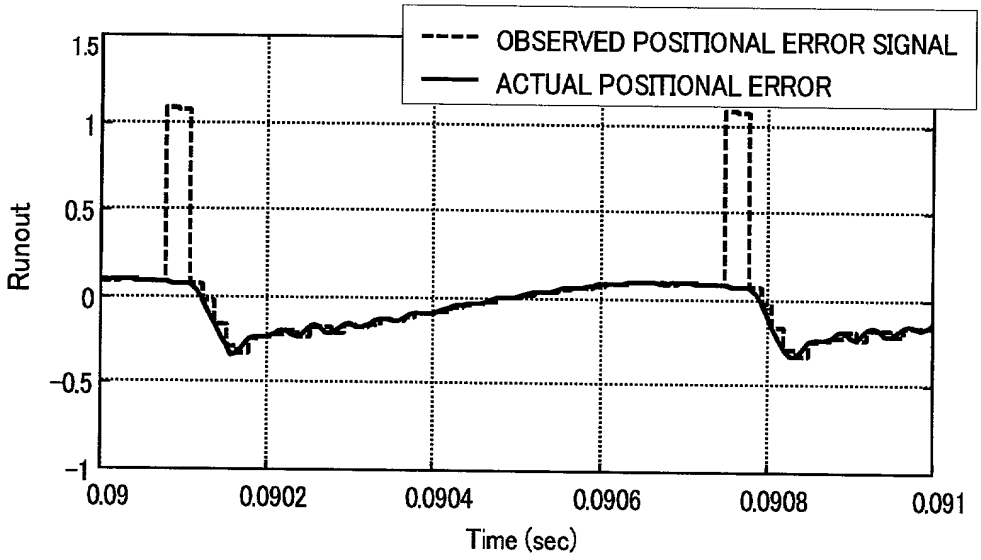

OBSERVED POSITIONAL ERROR SIGNAL
ACTUAL POSITIONAL ERROR
Runout
1.5
1
0.5
0
-0.5
-1
0.09
0.0902
0.0904
0.0906
0.0908
0.091
Time (sec)

FIG. 27

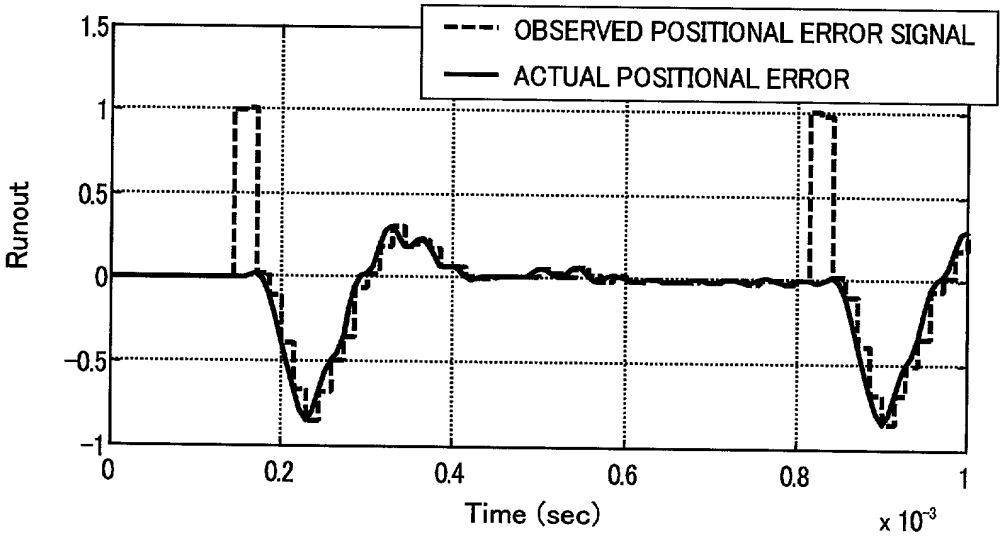

OBSERVED POSITIONAL ERROR SIGNAL
ACTUAL POSITIONAL ERROR
Runout
1.5
1
0.5
0
-0.5
-1
0
0.2
0.4
0.6
0.8
1
Time (sec)
x 10-3

FIG. 28

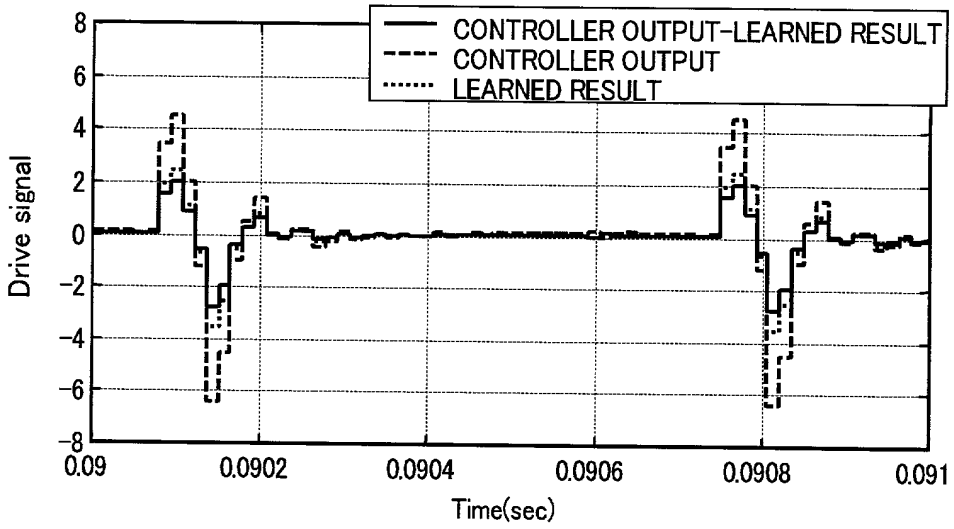


FIG. 29

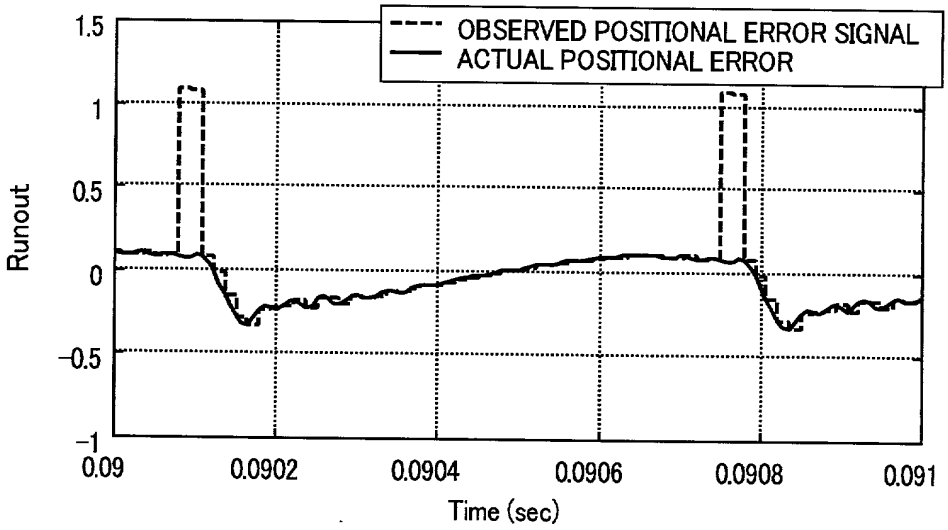


FIG. 30

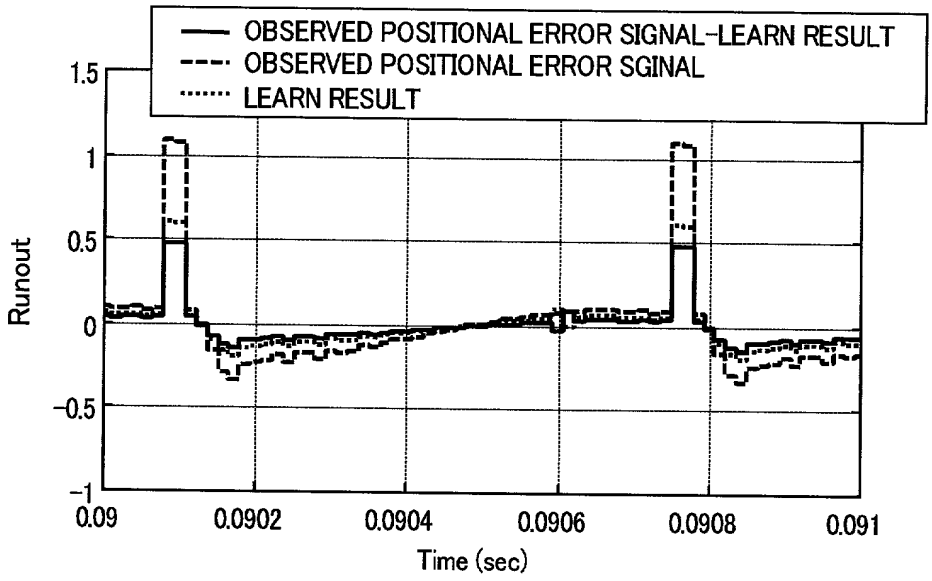


FIG. 31

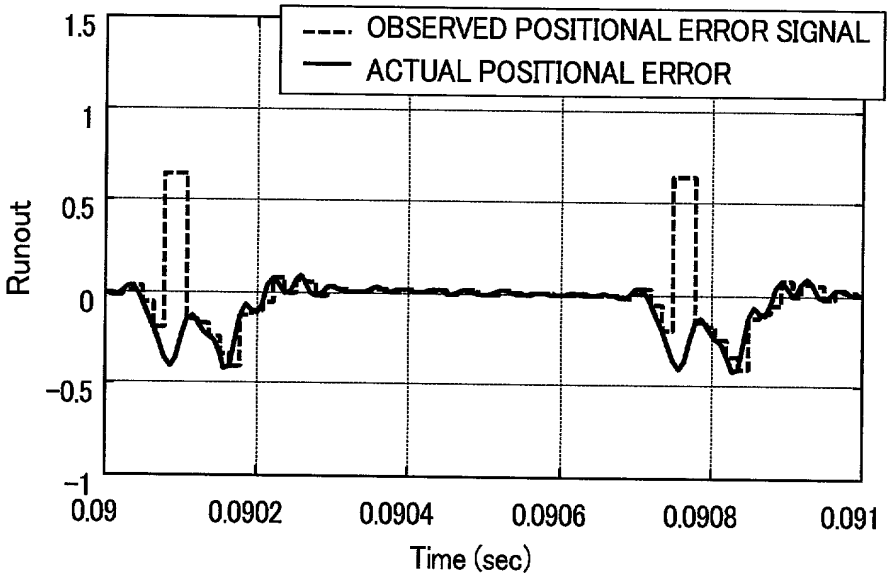


FIG. 32

PRIOR ART

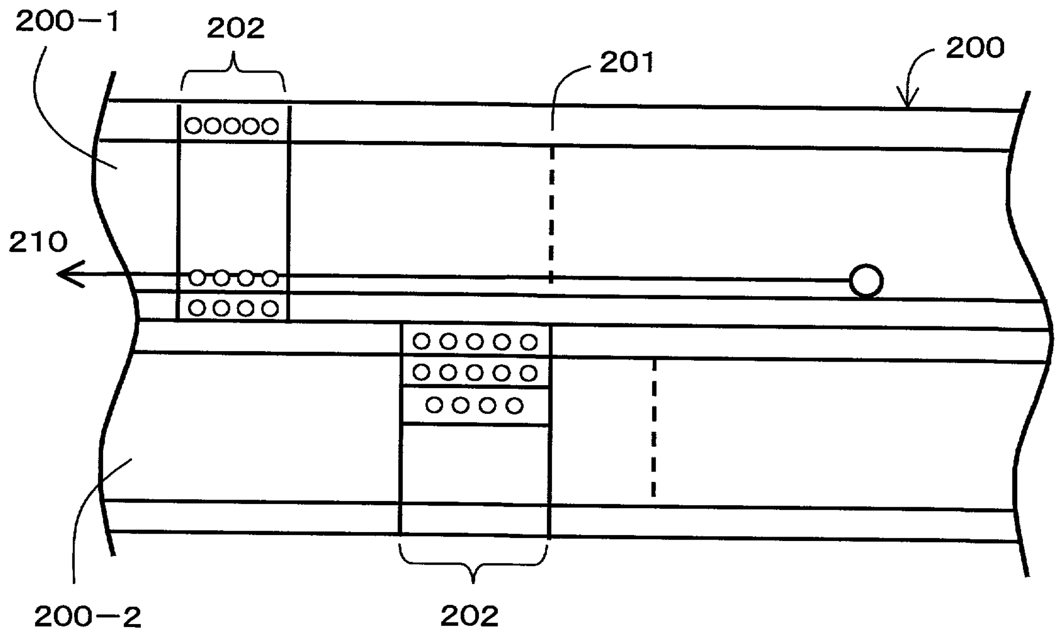


FIG. 33